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ABSTRACT

This unit of instruction on home energy usage and conservation was designed for use by home economics teachers in Florida high schools and by home economics extension agents as they work with their clientele. It is one of a series of 11 instructional units (see note) written to help teachers and agents to educate their students and clients about the problems of energy shortages and strategies for energy conservation and management. Topics covered in this unit include major uses of energy in the home; energy waste; energy audits; low cost energy conservation practices; and methods of reducing costs for air conditioning, heating, water heating, cooking, lighting, and doing laundry. The unit contains student performance objectives, content information, teaching-learning activities, student handouts, transparency masters, and evaluation instruments.
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LOW ENERGY TECHNOLOGY
A UNIT OF INSTRUCTION
IN
HOUSING AND HOME ENVIRONMENT
HOME ENERGY USAGE AND CONSERVATION

Developed by

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1980

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2 This unit of instruction was developed as a part of the Low Energy Technology Program of the Institute of Food and Agricultural Sciences, University of Florida. Additional copies of this and other units of instruction in Low Energy Technology can be obtained by contacting the Instructional Materials Service, 101 Rolfs Hall, University of Florida, Gainesville, Florida 32611.

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INTRODUCTION

The soaring costs of energy has hit the American consumer directly through their patterns of energy consumption at home. Floridians use a larger percentage of energy for their personal consumption than any other state. This is measured in terms of electrical usage for the residential sector.

There are many ways that the consumer can directly affect their own cost of energy. They can do this by making themselves aware of the ways in which they use energy at home. Once patterns of consumption are discovered, alternatives can be considered that will reduce wasteful energy habits and in the long run, save both fuel and money.

This unit of instruction on Home Energy usage and Conservation includes ten student performance objectives. Upon completion of this unit, the student will be able to:

1. List the four major uses of energy in the home and give two examples of each.
2. List a minimum of ten ways that families waste energy in their homes.
3. List four recommendations to reduce air conditioning costs.
4. List four recommendations to reduce heating costs.
5. List four recommendations to reduce water heating costs.
6. List four recommendations to reduce cooking costs.
7. List four recommendations to reduce lighting costs.
8. List four recommendations to reduce laundry costs.
9. Complete an energy audit of their home.
10. Initiate a minimum of ten no cost/low cost energy conservation practices in their home.

This unit of instruction includes student performance objectives, content information, teaching-learning activities, student handouts, transparency masters and evaluation instruments. Use a copy machine to reproduce the student handouts and make the transparencies.

This unit of instruction was designed for use by home economics teachers in Florida high schools and by extension home economics agents as they work with youth and adults. It would be appropriate for use by any professional home economist as they work with their clients. This unit of instruction was developed by the Department of Agricultural and Extension Education and Department of Home Economics, Institute of Food and Agricultural Sciences as part of their Low Energy Technology Program.

STUDENT PERFORMANCE OBJECTIVES	CONTENT	TEACHING-LEARNING ACTIVITIES
The student will be able to: 1. List the four major uses of energy in the home and give two examples of each.	Major methods of Using Energy in the Home - Air Conditioning - Cooling - Water Heating - Heating - Refrigeration and Freezing - Cooling - Space Heating - Heating - Lighting - Lighting - Cooking - Heating - Clothes Washing & Drying - Heating and Mechanical - Television - Heating and Lighting - Dish Washing - Heating and Mechanical - Other - Largely Mechanical Another way of looking at use of energy in the home Cooling - Air Conditioning - Refrigeration and Freezing Heating - Water - Space - Food Lighting Mechanical - Vacuum Cleaner - Garbage Disposal - Electric Fan	Read: "Energy Conservation Options" p.1. Transparency: "Florida Residential Energy Consumption". Divide class into four groups. Have each group take one use of energy and develop a list of how energy is used. Cooling Lighting Heating Mechanical Have each group report back to the entire class. Show slide-tape "Energy Ethics" available from: Instructional Materials Service 101 Rolfs Hall University of Florida Gainesville, FL 32611 or Motion Picture Service IFAS, Building 116 University of Florida Gainesville, FL 32611

STUDENT PERFORMANCE OBJECTIVES	CONTENT	TEACHING-LEARNING ACTIVITIES
2. List a minimum of 10 ways that families waste energy in their homes.	Ways that energy is lost around the home - Leaving lights on - Air conditioners set too low - Furnace left at 68° while family is gone - Washing half loads of clothes - Leaving the water running - Using wrong light bulbs - Leaving doors and windows open - Using full tub of water for a bath - No insulation or not enough - Using clothes dryer too often, too long - Ironing perma press sheets, clothes - Leaving the draperies open - etc.	After each student has completed their list of 10 ways, go around the class having each student give one of the ways they have listed. Continue going around the class until they have no additional ways listed that energy is lost. List these on the chalkboard. Classify each of the above losses as a loss of heating, cooling, lighting or mechanical energy.
3. List four recommendations to reduce air conditioning costs.	Reduce air conditioning costs - Increase temperature setting - Turn off when gone for a period of hours - Draw draperies, shades - lower awnings - Insulate	Read: "Energy Conservation Options" pp. 2-3. Discuss.
4. List four recommendations to reduce heating costs.	Reduce heating costs - Decrease temperature setting, even more at night - - Insulate - Weather-strip and caulk - Maintain heating equipment	Read: "Energy Conservation Options" pp. 4-5. Discuss Have heating and air conditioning representative speak to class.

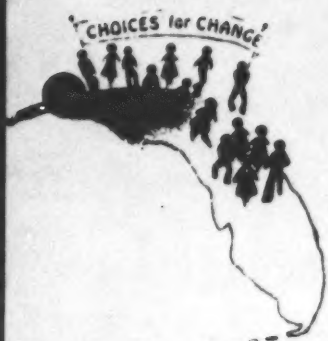
STUDENT PERFORMANCE OBJECTIVES	CONTENT	TEACHING-LEARNING ACTIVITIES
5. List four recommendations to reduce water heating costs.	Reduce water costs - Reduce water heater temperature to 120° - Use less hot water - Repair dripping faucets - Insulate water heater	Read: "Energy Conservation Options" pp. 6-7. Discuss.
6. List four recommendations to reduce cooking costs.	Reduce cooking costs - Turn off electric surface units earlier - Use pressure cooker - Match pan to burner - Don't overcook	Read: "Energy Conservation Options" p. 8. Discuss.
7. List four recommendations to reduce lighting costs.	Reduce lighting costs - Turn off lights - Use light colored paint or wall paper - Use fluorescent lights - Use one large bulb rather than two small bulbs	Read: "Energy Conservation Options" pp. 9-10. Discuss.
8. List four recommendations to reduce laundry costs.	Reduce laundry costs - Use cold or cooler water - Wash only full loads - Avoid overdrying - Limit ironing	Read: "Energy Conservation Options" pp. 10-11. Discuss Have students select one of the energy conservation areas and report to class.

UNIT: HOUSING

LOW ENERGY TECHNOLOGY
HOUSING AND HOME ENVIRONMENT

MODULE: HOME ENERGY USAGE AND
CONSERVATION

STUDENT PERFORMANCE OBJECTIVES	CONTENT	TEACHING-LEARNING ACTIVITIES
9. Complete an energy check of their home.		Handout: "Energy Management Checklist for the Home". Have students complete an energy audit of the home.
10. Initiate a minimum of ten no cost/low cost energy conservation practices in their home.	No Cost - Low Cost Energy Conservation Practices - Turn off the lights - Lower-raise the thermostat - Draw the draperies or shades - Set water heater at 120° - Fix dripping faucets - Etc.	Have students complete the Handout "This I Will Do". Collect and discuss.



ENERGY CONSERVATION OPTIONS

Florida Cooperative Extension Service
Institute of Food and Agricultural Sciences
University of Florida, Gainesville
John T. Woeste, Dean for Extension

Reduction in fuel consumption can be brought about by simply using less and by using energy more efficiently. This list describes a comprehensive set of measures that can lead to a large reduction in the quantity of fuel consumed by the typical residence.

A considerable range of home characteristics exists with differences in construction and differences in the habits of the occupants. For example, a home may already have some ceiling insulation and it may be more efficient to weatherstrip and caulk before adding extra insulation. And personal actions, such as the frequency of the opening and closing of doors, is a significant factor in cooling and heating loads.

Therefore, the degree of savings depends not only on the construction aspects of your home, but to a great extent on the life style and habits of the occupants.

About 23.4 percent of the total energy consumed in Florida is for residential use. The following table gives you an idea of how we use that energy in our homes.

*FLORIDA RESIDENTIAL ENERGY CONSUMPTION: Estimated Amount Consumed and Percentage Distribution by End Use, 1976

*Source: State of Florida, Department of Administration, State Energy Office, Forecasts of Energy Consumption in Florida, June 1978. (Florida Statistical Abstract 1978, page 358)

END USE	1976 Percentage of Total Residential Use
1. Air Conditioning	32.9
2. Water Heating	25.6
3. Refrigeration and Freezing	12.4
4. Space Heating	9.8
5. Lighting	5.1
6. Cooking	5.1
7. Clothes Washing and Drying	3.8
8. Television	1.7
9. Dish Washing	.9
10. Other	2.7
TOTAL	100.0 % = 23.4%
	Residential Sector

AIR CONDITIONING-Florida-32.9% of total energy used in residences*

Option	Description	Cost	Remarks	Whom To See
1. Increase temperature setting from 72° to 78°-80° F.	Reduces amount of cooling required.	No cost.	Amount saved will vary over state.	No one required.
2. Insulate attic to reduce heat gain.	Reduces heat gain in the home--especially through the ceiling.	Varies with location & material. Obtain several estimates.	Will save on both heating and cooling energy and costs.	Building supplier or contractor.
3. Utilize high efficiency air conditioners (High EER)	Reduces electric energy required for given amount of cooling.	Cost of a new unit.	Only to be considered when replacing old unit or installing room unit. EER of 7 or greater.	Air conditioning and heating sales; appliance dealers.
4. Install sunshades or screens.	Reduces solar load through windows.	May be large.	Can be installed by owner.	Building supply; home furnishings.
5. Double-glazing	Reduces heat load through glass area.	May not be cost effective.	Savings vary with location.	Builder supply or contractors.
6. Weather stripping and caulking.	Reduces hot air infiltration.	No good estimate available. Depends on material used.	Savings vary with location. Especially important in hot, windy regions.	Building supply or contractors.
7. Minimize use of heat generating equipment during cooling hours.	Reduces heating load from heat generated within the home. Can be up to 30% of the entire cooling load.	Depends on extent of appliance replacement.	Requires minimizing cooking, utilizing small appliances when possible, and using ventilating fans if outside air is cooler.	No one required.

AIR CONDITIONING (Continued)

Option	Description	Cost	Remarks	Whom To See
8. Install draperies, blinds, or roller shades.	Reduces solar heat gain through glass; depends on type of material and installation.	Usually already present.	Keep closed during hot portion of day. Also provides extra thermal insulation and some storage effect.	Home furnishings.
9. Install sun control films on east and west windows.	Reduces up to 80% of solar heat gain.	High cost.	Large windows usually require professional installation.	Building supply or contractor.
10. Eliminate standing pilot lights in spaces to be cooled.	Reduces internal heat gain.	Cost includes re-lighting or installation of electric ignition unit.	May be difficult to achieve. Value is questionable in those cases. Safety factor must be checked.	Gas utility.
11. Reduce use of lighting.	Reduces internal heat gain from incandescent.	No cost.	Lights usually not required during period of high heat.	No one required.
12. Plant shade trees to shade windows on south, east and west side of house.	Reduces solar heat load on walls and glass.	Moderate cost for young trees.	Requires long periods to take effect, but can be beneficial.	Nursery or gardening center; landscape service.

SPACE HEATING-Florida- 9.8% of the total energy used in residences*

Option	Description	Cost	Remarks	Whom To See
1. Reduce thermostat from 72°F to 68°F.	Lowers the temperature of the interior requiring less heat to be generated.	No cost in equipment	This saving is the easiest to obtain.	No one required.
2. Night setback an additional 5-10°F.	Requires still less heat during the setback period.	No cost unless automatic unit is used.	Again, savings will occur for any home although actual amount will vary. Should also be done when home is unoccupied at any time.	Air conditioner or heater sales; large building supply; department stores For automatic setback devices, see air conditioner or heater sales.
3. Insulation of ceiling.	Reduces heat flow through the ceiling.	Depends on the R-value, material, and location.	The savings depend on degree of insulation in place. The desirable ceiling level is from R-26 to R-30.	Building supply; insulation, building and home improvement contractors.
4. Weather-strip and caulk.	Reduces infiltration of unheated or uncooled air into home.	No good estimate available. Depends on material used.	The savings depend on existing levels of weatherstripping and age and construction quality of home.	Building supply or hardware store. Also building and home improvement contractors.

SPACE HEATING (Continued)

Option	Description	Cost	Remarks	Whom To See
5. Equipment Maintenance	Increases the efficiency of furnace equipment reducing the amount of fuel needed for a given heat load. Concerns cleaning, replacement of filters, and adjusting air-fuel mixture.	Service contracts vary for complete maintenance.	The savings will vary depending on actual efficiency of furnace which depends on age and condition.	Furnace dealers and equipment maintenance companies.
(a) Tune-up				
(b) Filter replacement and cleanup				
6. Equipment modification and modernization.**				
(a) Replace old equipment with higher efficiency devices such as heat pump.	Decreases amount of fuel used for a specified heat load. New equipment must be of high efficiency.	High cost, about \$1,000 to \$2,000 per unit or more.	Should only be done when existing equipment is unrepairable or when repair costs plus expected savings approach new equipment costs.	Heating equipment sales.
(b) Automatic heating control.	Use of solid-state control to maintain desired temperature for electric furnaces.	About \$150 for system.	Concept primarily developed for electric furnaces and baseboard heaters.	Electric heating equipment sales.
(c) Insulate pipes or ducts where heat loss (gain) occurs.	Reduces flow of heat through duct or pipe-walls in spaces not normally heated.	Cost depends on extent of insulation needed.	Usually requires outside contractor but may be done by homeowner.	

** (May not be economical or cost-effective, especially in South Florida.)

WATER HEATING-Florida- 25.6% of total energy used in residences*

Option	Description	Cost	Remarks	Whom to See
1. Reduce water heater temperature to 120° F.	Reduces fuel needed to maintain hot water, lower temperature and less standby heat loss.	No cost.	Might require larger storage tanks to maintain required amount of hot water. Dish washer and other sanitary purposes require 140°F water.	No one required. If desired, however, contact gas or electric utility.
2. Minimize hot water usage.	Reduces consumption of hot water, hence fuel.	No cost.	Whenever possible use the minimum amount of hot water needed, e.g., reduce bath water, substitute showers, etc.	No one required.
3. Repair leaking hot water faucets.	Waste of heated water. One drop per second is 192 gallons per month.	Less than \$5-10 if done by owner.	Additional losses occur due to hot water standing in pipes.	Self or local plumber.
4. Place heater close to point of use.	Reduces amount of hot water standing in pipes.	Costs may include additional tank and plumbing.** High costs.	Restricted to new construction unless major renovation takes place.	Building and plumbing contractors.
5. Insulate pipes.	Reduces heat loss of hot water standing in connecting pipes.	Cost depends on amount of pipe and its accessibility.	Probably requires outside contractor for complete job.	Building and plumbing suppliers or contractors.

** Additional tank required if points of hot water use are widely separated.

WATER HEATING (Continued)

Option	Description	Cost	Remarks	Whom To See
6. Maintain in good condition by cleaning combustion chamber of your gas water heater.	Prevents combustion efficiency from becoming too low.	Small cost--usually just cleaning.	Combustion usually fairly efficient in gas water heater.	Gas utility, equipment dealers, do-it-yourselfers.
7. Insulate water heater.	Wrap electric water heater with batt or blanket insulation.	Small cost if done by owner.	Kits are available or purchase fiberglass insulation.	Building supply or mail order.
8. Install heat recovery unit. =	Uses waste heat from air conditioner to heat water.	High cost (about \$500). Depends partially on material used.	Can heat up to 80 percent of water for family of four.	Air conditioning and heating sales; home improvement contractor.
9. Flow restrictors in all sinks and showers (faucets).	Reduces water flow from 6-10 gallons per minute to 2-3 gallons per minute.	Small cost if done by owner.	Savings on water alone estimated 40 gallons per day per person. Also, savings on heating water used.	Building supply; hardware store.

COOKING-Florida- 5.1% of total energy used in residences*

Option	Description	Cost	Remarks	Whom To See
1. Turn off electric surface units just before food is cooked.	Uses heat retained in surface units.	No cost.	Requires constant vigilance. Also reduces internal heat gain in building.	No one required.
2. Set surface element for cooking task desired, i.e., do not overheat.	Eliminates excess wasted heat.	No cost unless control unit purchased.	Requires knowledge of desired heat level. New units may have built in controls.	No one required.
3. Match size of pan to surface unit.	Reduces waste heat escaping around pan edges. On electric ranges pans should have flat bottoms.	No cost unless new cookware required.	Requires some planning if several units are in use at once.	No one required.
4. Coordinate meals as much as possible.	Reduces amount of time range is in use by using oven for more than one item at a time.	No cost.	Requires careful planning and possible use of freezer if more than one meal is prepared at one time.	No one required.
5. Use pressure cooker when possible.	Reduces cooking time by 1/3; hence, reduces range usage.	No cost unless purchase of cooker is required.	Read manufacturer's instructions.	No one required.
6. Do not preheat for roasting or broiling far in advance.	Reduces range energy consumption.	No cost.	Preheating should be used only when absolutely required.	No one required.
7. Use smaller thermostatic controlled appliances such as crock pot or electric fry pan.	Reduces energy consumption.	Cost of small appliance.	Efficient for stews and combination meals.	Instruction manual.

LIGHTING-Florida-5.1% of total energy used in residences*

Option	Description	Cost	Remarks	Whom To See
1. Turn off lights in unoccupied areas.		No cost.	Requires constant vigilance. Turn off fluorescent lights only if out of room for more than an hour.	No one required.
2. Turn off outdoor gas lamps.		No cost unless lamp is removed.		No one required.
3. Use light colored paint or paper on walls & ceilings.	Increases background illumination, hence allows reduction in lamp level.	Costs about \$20-\$200 per room depending on whether owner does job.	Most lighting is direct & task oriented so reflection component is small. Should only be considered if redecorating is being undertaken.	Paint dealer; building or home improvement contractor.
4. Use more efficient light source -	Reduces amount of electricity required for a given illumination level.	Costs are high, especially if major remodeling is required.	Replacement usually confined to bathroom or kitchen. Warm color fluorescent however, allows for wider use. Should be considered during room modification.	Lamp sales & building contractor or electrician. Also electric utility company.
a. Use fluorescent rather than incandescent.				
b. Replace two 60 watt bulbs with one 100 watt bulb.		No cost	Useful in multiple light fixtures.	

LIGHTING (Continued)

Option	Description	Cost	Remarks	Whom To See
5. Control decorative lighting.	Reduces use of nontask oriented lighting.	Small cost for elimination of light.	Attempt to use fewer lights more effectively.	No one required.
6. Concentrate light on task to be performed.	Reduces overall use of lights.	Small costs--principally portable lamps.	Most residential lighting is already task oriented.	No one required.
7. Automatic control of outdoor safety/security lighting.	Eliminates light during non-essential hours.	Costs may be large--requires photocells and timers.	Include with purchase of safety/security lighting.	Electrician or building contractor.
14 8. Use dimmer controls wherever possible.	Reduces periods of use of more light than task requires.	Approximately \$4-\$8 per switch if owner installed.	Use correct dimmer control for wattage. Requires special fixture for fluorescent.	Building or electrical supply, electrician, building contractor, hardware store.

LAUNDRY- Florida - 3.8% of total energy used in residences not including hot water use*

Option	Description	Cost	Remarks	Whom to See
1. Use cold water whenever possible.	Reduces heating requirements of water heater.	No cost.	Requires cold water detergent. Should not be done if hot water is required for sanitary purposes.**	No one required. Instructions usually appear on cold water detergent box.

LAUNDRY (Continued)

Option	Description	Cost	Remark	Whom to See	
2.	Plan full loads to avoid extra washing and drying.	No cost.	Only required in older washers. On new units, use the water level required.	Laundry appliance dealers; washer instructions.	
3.	Avoid overdrying.	Reduces dryer energy requirements.	No cost unless sensor-equipped dryer is purchased.	Requires constant observation near end of cycle on older dryers. New units have sensors which perform this function.	Laundry appliance dealers.
4. 15	Use controls properly to conserve water and energy.	Minimizes wastes due to excessive amount of hot water.	No cost unless new units are purchased.	May require educational program to demonstrate necessary water and drying temperatures.	Laundry appliance dealers.
5.	Proper venting of hot, moisture-laden air to outside.	Reduces internal heat gain; allows laundry equipment to operate more efficiently.	If not installed with units, could be of moderate expense.	Usually installed with dryer. May not be possible in enclosed apartments. Should be included when dryer is in air conditioned space.	Appliance sales and service.
6.	Keep lint trap free.	Maintains dryer efficiency; prolongs life.	No cost.	Has largest effect on minimizing dryer maintenance.	No one required. See dryer instructions.

**A recent study (Consumer Reports) indicates that many all-purpose detergents perform as well as so-called cold water detergents.

According to the information in these tables, where can you achieve the greatest savings in your home? _____

Indicate the items in the preceding tables which can give you immediate savings at little or no cost.

Indicate the items which will require more time and investment to achieve savings in energy and money.

For example, immediate savings are possible by changing the thermostat to the recommended setting (No cost).

Immediate savings are also possible by increasing the amount of ceiling insulation to the recommended R-value. (More time and investment).

Make a list of your short term or immediate goals and another list for items which require more time and money.

* * *

Contact your county Extension office for more information on how to conserve energy and money.

The tables were adapted from, "Measures for Reducing Energy Consumption for Homeowners and Renters", PB - 240 472, Federal Power Commission, Washington, D.C., 1975.

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FLORIDA RESIDENTIAL ENERGY CONSUMPTION

USE	PERCENT OF TOTAL RESIDENTIAL USE	USE	PERCENT OF TOTAL RESIDENTIAL USE
AIR CONDITIONING	32.9	COOKING	5.1
WATER HEATING	25.6	CLOTHES WASHING & DRYING	3.8
REFRIGERATION & FREEZING	12.4	TELEVISION	1.7
SPACE HEATING	9.8	DISH WASHING	.9
LIGHTING	5.1	OTHER USES	2.7
			TOTAL 100.0

23.4% OF ALL FLORIDA ENERGY IS HOME USE

SOURCE: STATE OF FLORIDA, DEPARTMENT OF ADMINISTRATION, STATE ENERGY OFFICE
FORECASTS OF ENERGY CONSUMPTION IN FLORIDA, JUNE, 1978

ENERGY MANAGEMENT CHECKLIST FOR THE HOME



FLORIDA COOPERATIVE EXTENSION SERVICE
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
UNIVERSITY OF FLORIDA, GAINESVILLE
JOHN T. WOESTE, DEAN FOR EXTENSION

American lifestyles use up an exceptionally large amount of energy. In the past, energy was an inexpensive resource that was readily available to everyone. However, the cost of energy is increasing at an alarming rate.

Family behavior is very important in stretching the energy dollar and saving energy resources for future use! If we really want to save energy, we must change some of our habits. But energy can be saved without sacrificing our level of living. Involve all members of the family in energy saving projects. Small reductions in energy used add up to large savings when practiced by many people.

ENERGY CHECKLIST

This checklist is designed to help you evaluate energy usage in your home and to decide just where you can begin to conserve. Start with the simple things and work your way down the list as far as your budget will allow. Remember, it may not be possible to do everything you would like to, but the more you can control your use of energy, the more you save.

CONTROL INDOOR TEMPERATURES

HAVE DONE

WILL DO

Reduce daytime home heating temperature in winter to 68°F or lower.

Reduce nighttime winter temperatures 5°-8° or more.

Open and close outside doors quickly when you enter or leave your home.



HAVE DONE

WILL DO

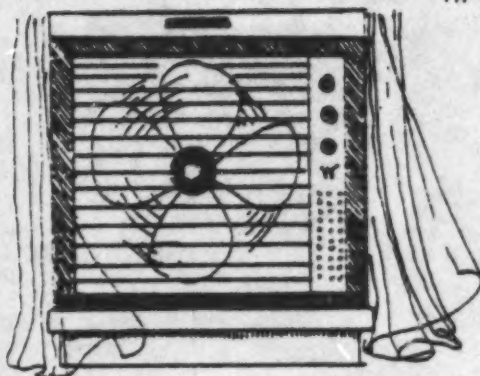
Close off unused rooms and closets.

Open draperies and roll up shades to receive sun's heat in winter.

Reduce heating and cooling temperatures when away from home for long periods of time.

Increase temperature setting for summer air-conditioning, 78°F or higher.

Set air-conditioning unit to recirculate cool air instead of pulling in warmer outside air.



Use window and attic fans for cooling during summer when outside temperature is below house temperature.

HAVE DONE

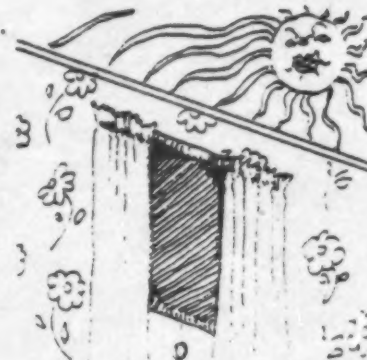
WILL DO

In the spring and fall, open windows in evening or early morning; close windows during mid-day or afternoon.

Shade windows from direct sun in summer with draperies and roll-up shades.

Plant trees that shade your house.

Install a roof overhang to protect windows.



HAVE DONE

WILL DO

Use awnings or other treatment.



CONTROL AIR LEAKS

Caulk cracks around doors, windows, foundation, fireplaces.

In winter, cover windows with plastic.

Close door of attached garage in winter.

Close off flue when fireplace is not in use.



HAVE DONE

WILL DO

Weatherstrip doors and windows.

Use kitchen and bathroom exhaust fans only when necessary.

Seal unused doors.

HAVE DONE

WILL DO

Select a heating system properly sized for house.

Seal leaks in ductwork.

Insulate all ducts in exposed areas.

Maintain heating and cooling equipment in good operating condition.

Keep air filters clean to make it easier for heating and cooling system to do its job.

Select an energy efficient air-conditioner unit the proper size for space to be cooled.

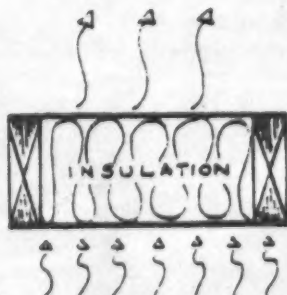
Arrange with a heating/cooling dealer for yearly maintenance.



Ceiling R-26 to R-30.

Walls R-11 to R-13.

Floors over unheated spaces R-9 to R-11.



MANAGE YOUR EQUIPMENT WISELY

HEATING WATER

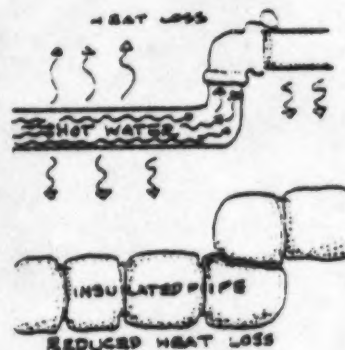
HAVE DONE

WILL DO

Reduce the amount of hot water used.

Insulate hot water pipes, including those under the house.

Maintain regular temperature setting of 120° - 140°F on water heater
Use 140°F for a dishwasher.

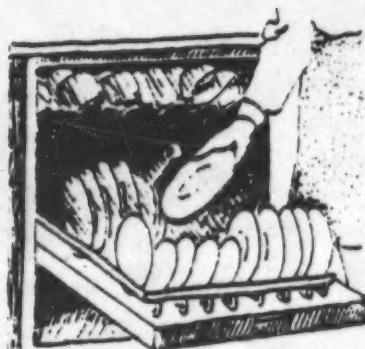


HAVE DONE

WILL DO

Repair leaky faucets.

DISHWASHING



Accumulate dishes; hold until the dishwasher is filled. If dishes are hand washed, rinse and hold breakfast dishes until noon or evening.

Avoid wasting hot water by letting it run continuously while washing or rinsing dishes.

LAUNDRY

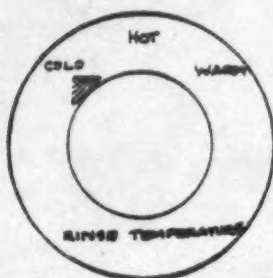
HAVE DONE

WILL DO

Wash only full loads of laundry.

Use water no hotter than necessary for adequate soil removal and sanitation.

Use cold water for rinsing clothes.



Use good laundry techniques to obtain satisfactory results in one washing process.

HAVE DONE

WILL DO

Avoid over drying in the dryer.

Line dry garments and household items when practical.



Use the dryer efficiently. Avoid drying one or two items at one time. Dry consecutive loads.



Remove items when dryer stops to avoid unnecessary wrinkling, which will require pressing to remove. Clean lint filter after each load.

Reduce ironing to a minimum by careful selection of garments and household items.



LIGHTING

HAVE DONE

WILL DO

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Turn off unnecessary lights, indoors and out.

Reduce lighting levels to minimum for task to be performed.

Use bulbs with lower wattage in halls, stairways, and other areas of general illumination.

Use light colors in decorating to improve lighting efficiency.

Do tasks which require a high light level during the daylight hours when possible.

Keep lighting fixtures clean.

Use timers to turn lights on in the evening rather than leaving lights on all day when no one is home.



COOKING AND BAKING



Use oven to capacity.

Use cooking utensils which fit the electric unit or gas burner.

Use tight fitting lids on cooking utensils, when appropriate.

Reduce heat to lowest setting possible to maintain necessary cooking temperature when using surface units or burners.

HAVE DONE

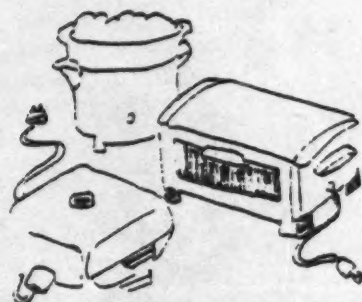
WILL DO

_____	_____
_____	_____
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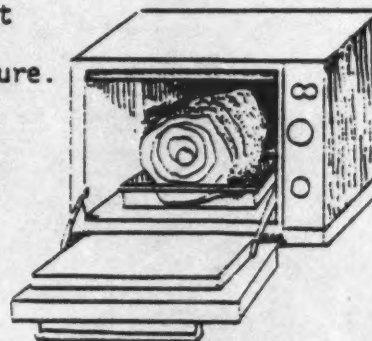
HAVE DONE

WILL DO

Use small appliances for cooking, baking, and toasting. They are often more efficient than the range for small amounts.

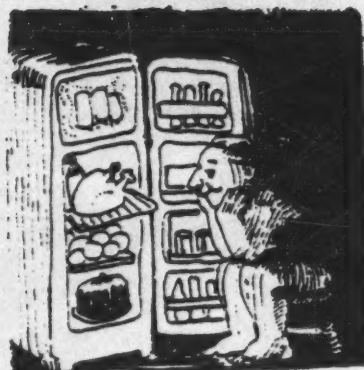


Preheat oven only when necessary. Do not preheat longer than needed to attain required temperature.



When cooking with electricity, turn off oven, surface units or burners shortly before food is cooked.

REFRIGERATION-REFRIGERATOR AND FREEZER



HAVE DONE

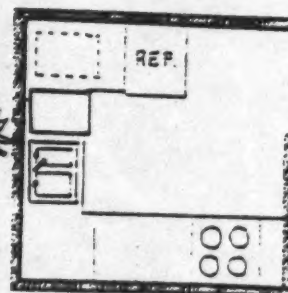
WILL DO

Avoid opening door or holding it open unnecessarily.

Keep grills and evaporator coils clean.

Defrost as needed.

Locate cooling appliances away from a heat source such as the range, hot air register, or direct sun.





HAVE DONE

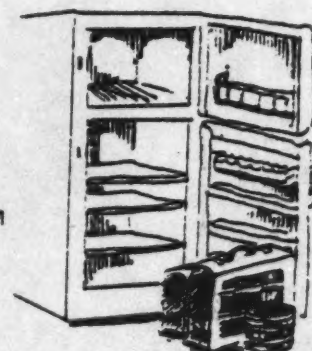
WILL DO

If cold air is leaking around door, have door adjusted or gasket replaced.

HAVE DONE

WILL DO

Turn off, empty, clean and leave refrigerator door open when taking an extended vacation.

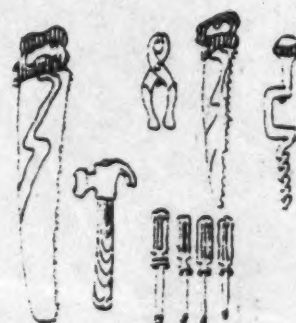


CLEANING AND MAINTENANCE

Empty or replace vacuum cleaner bag frequently to keep it functioning efficiently.

Eliminate unnecessary vacuuming and floor polishing.

Use hand equipment rather than power equipment when practical.



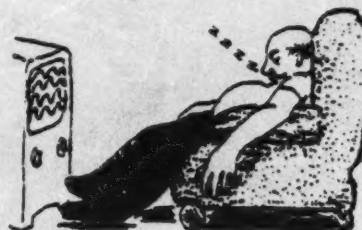
Develop preventative maintenance practices. Routine checkup and servicing will prevent greater problems later.

RECREATION AND ENTERTAINMENT

HAVE DONE

WILL DO

Turn off TV, radio, or stereo when no one is really watching or listening.



Disconnect an instant-on TV when you are not going to be using it regularly.



Use shop or hobby equipment efficiently.

Maintain tools in good operating condition.

HAVE DONE

WILL DO

Encourage family members to develop leisure activities such as bicycling, hiking, reading, swimming, etc., that have low energy costs.

Spend vacations closer to home.

Encourage home and neighborhood activities.



PERSONAL CARE

HAVE DONE

WILL DO

Take short showers instead of full tub baths.

Don't let the water run unnecessarily while you shave, brush your teeth, or wash you hair.

Turn off personal care appliances after each use.

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This information in this fact sheet is adapted from the publication PA-118, "Energy Management Checklist For The Home", Glenda Pifer, Housing Specialist, USDA, 1975.

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Illustrations by: Katherine B. Fitzpatrick

NAME _____

HANDOUT

" THIS I WILL DO"

There are many things all of us can do at home to save energy, alone and with a little help from our family members. Some of the things I will do are:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.